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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,968	01/29/2004	Dominique Mangelinck	ASTAP2004-01	1967
31366	7590	02/01/2008	EXAMINER	
HORIZON IP PTE LTD 8 KALLANG SECTOR, EAST WING 7TH FLOOR SINGAPORE 349282, 349282 SINGAPORE				SARKAR, ASOK K
ART UNIT		PAPER NUMBER		
2891				
			MAIL DATE	DELIVERY MODE
			02/01/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/707,968	MANGELINCK ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Asok K. Sarkar	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 08 October 2007.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-3,5-28,33-36,41 and 42 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-3,5-28,33-36 and 41 is/are allowed.
- 6) Claim(s) 42 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 29 January 2004 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ .  | 6) <input type="checkbox"/> Other: _____ .                        |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu, US 6,555,438 in view of Bai, US 6,204,103.

Wu teaches a method of fabricating a gate electrode for a semiconductor comprising the steps of:

- providing a substrate prepared with a gate stack 12, the gate stack includes a gate dielectric 10 on the substrate 2 and a gate layer 12 on the gate dielectric 10, the gate layer comprising a first material of thickness  $t_p$ , the first material being selected from the group consisting of Si with reference to Figs. 1 and 2 in column 4, lines 14- 62;
- providing a metal layer 26 on the gate layer 12, the metal layer having a thickness  $t_m$  wherein the thicknesses  $t_p$  and  $t_m$  are related by a predetermined ratio of  $t_m/t_p$  (inherent in the process) with reference to Fig. 7; and
- annealing the layers, to form a resulting layer which serves as the gate electrode in contact with the gate dielectric, wherein source/drain contacts are formed simultaneously with the gate electrode with reference to Fig. 8 in between column 5, line 50 and column 6, line 20.

Wu fails to teach annealing the layer such that substantially all of the first material of the gate layer and metal of the metal layer over the gate layer are consumed during reaction with one another.

Bai teaches forming CMOS devices in which he teaches the step of annealing the layer such that substantially all of the first material of the gate layer and metal of the metal layer over the gate layer are consumed during reaction with one another with reference to Figs. 17 and 18 having a work functions of 4.1 eV and 5.1 eV (column 6

lines 32 – 67) for the benefit of making a pair of NMOS and PMOS devices to reduce the gate depletion effect and provide other additional benefits in column 2, lines 16 – 22.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Wu and anneal the layer such that substantially all of the first material of the gate layer and metal of the metal layer over the gate layer are consumed during reaction with one another for the benefit of making a pair of NMOS and PMOS devices to reduce the gate depletion effect and provide other additional benefits as taught by Bai in column 2, lines 16 – 22.

***Response to Arguments***

5. Applicant's arguments filed October 8, 2007 have been fully considered but they are not persuasive as far as claim 42 is concerned. The Applicant failed to respond to the previous rejection of claim 42. The Applicant's argument regarding other claims 1 – 3, 5 – 28 and 33 – 36 and 41 were persuasive and therefore those claims are now allowed.

***Allowable Subject Matter***

6. Claims 1 – 3, 5 – 28 and 33 – 36 and 41 are now allowed.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asok K. Sarkar whose telephone number is 571 272 1970. The examiner can normally be reached on Monday - Friday (8 AM- 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William B. Baumeister can be reached on 571 272 1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Asok K. Sarkar/  
Primary Examiner, Art Unit 2891

January 28, 2008